BJH Platelet Donor Program Closing

by: Brenda Grossman

After more than 30 years of operation, the BJH platelet donor program is closing. The decision to close was a difficult one. However, patient safety and quality blood components must be our first priorities. Increasing regulations and the demands required to provide the best quality blood components, make it difficult to continue to operate donor and blood processing services within a hospital setting. Words cannot express the gratitude to the donors who have participated in our program. We hope that they will continue to participate in the community programs listed below. For active donation sites please see visit the following websites:

American Red Cross, Missouri/Illinois Region
http://www.redcrossblood.org/missouri-illinois

Mississippi Valley Regional Blood Center
http://www.bloodcenter.org/

Any further questions may be directed to Brenda Grossman, MD, MPH, Transfusion Medicine, and Medical Director at 314 362-6032.

Update: MALDI-TOF MS for the Identification of Mycobacteria

by: Allison McMullen and Carey-Ann Burnham

The BJH Microbiology Laboratory recovers mycobacteria from 250 to 300 clinical specimens each year. Classically, species-level identification has required specialized and time consuming techniques. This, in combination with the slow growth rate of these organisms, resulted in prolonged turnaround time.

During the summer of 2015, the BJH Microbiology lab transitioned to the use of matrix-assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF MS) for mycobacterial identification. This method has dramatically improved the turnaround time for the identification of these organisms. Since MALDI-TOF MS has been implemented, the laboratory has been able to rapidly identify a variety of different species, such as M. xenopi, M. marinum, and M. neoaurum. In most cases, the turnaround time for mycobacterial identification has improved by weeks.

For questions regarding mycobacterial testing, please contact Carey-Ann Burnham, PhD (cburnham@path.wustl.edu) or the Microbiology Fellow at 801-3108.
Change in Method for Cryptococcal Antigen Detection in Blood and CSF Specimens

In May 2016, the BJH Clinical Microbiology Laboratory implemented a lateral flow assay (IMMY, Inc.) for the qualitative and semi-quantitative detection of cryptococcal antigen (CrAg) in CSF and blood specimens. This method detects both Cryptococcus neoformans and Cryptococcus gattii and will replace the CrAg latex agglutination method currently in use at BJH. The CrAg assay will be performed Monday-Sunday and results will be reported within 24 hours of receipt in the microbiology lab. If the specimen is positive for CrAg, titration of the specimen will be performed using serial dilutions of the specimen. Titers will be reported from less than 1:5 to greater than or equal to 1:2560. Of note, the dilution series and range is different from the previous assay, in which titers were reported from less than 1:2 to greater than or equal to 1:2048. In-house validation of the qualitative method showed 100% agreement with the previous method. A comparison of titers between the two methods showed good correlation for serum (R² = 0.99) and CSF (R² = 0.80). Notably, false negative reactions may occur with hemolyzed samples due to high background. Repeat testing of patients with a prior positive result within one year will not be performed, as CrAg may remain positive in these patients for up to one year. If CrAg testing is requested on CSF, fungal culture will be set up on the specimen in addition to antigen testing.

If you have any questions, please contact Carey-Ann Burnham, PhD, Medical Director of Microbiology at cburnham@path.wustl.edu or the Laboratory Medicine Resident on-call for microbiology at 314-747-1320.

MTHFR C677T Mutation Testing

The Molecular Diagnostic Laboratory (MDL) began offering testing for the MTHFR C677T mutation on June 27, 2016. A cytosine to thymine mutation at nucleotide position 677 (C677->T), encoding for an alanine-223 to valine substitution (MTHFR C677T) leads to a loss of approximately 50% enzyme activity and marked enzyme lability to heat inactivation (thermoliability). The MTHFR C677T polymorphism is quite common with a carrier frequency approaching 40% in white North American populations. The enzyme MTHFR catalyzes reduction of 5, 10-methylene tetrahydrofolate to 5-methyl tetrahydrofolate which serves as a methyl donor for remethylation of homocysteine to methionine. Patients who are homozygous for the MTHFR C677T mutation may develop hyperhomocysteinemia with concurrent deficiency of vitamins B12, B6 (pyridoxine), or folic acid. Hyperhomocysteinemia is an independent risk factor for coronary artery disease, acute myocardial infarction, peripheral arterial disease, stroke, venous thromboembolism, acute rejection of renal transplants, and accelerated GFR decline in African-Americans with kidney disease and hypertension.

Detection of MTHFR C677T mutation is performed using the Invader MTHFR 677 Assay with normal and mutation specific probe sets and FRET technology. Results are reported as a genotype “call” along with sample and run validity.

Blood samples should be collected in a 3 mL purple top EDTA tube. Please ensure a paper requisition accompanies the specimen to the laboratory. The Medical Genetics requisition can be found at http://pathology.wustl.edu/patientcare/moldiagnostic.php or include a printed order from AllScripts/Compass. The assay will be performed on Wednesdays, with a 3 to 7 business day turn-around-time. The CPT code is 81291.
Microbiology Update: Urine Cultures

Traditionally, the Barnes-Jewish Hospital Microbiology laboratory has used a microbial colony count of 50,000 CFU/mL (colony forming units per mL) as a threshold for clinically significant growth from midstream urine specimens, and 5,000 CFU/mL as a threshold for clinically significant growth for urine specimens collected using a catheter. As of May 9, 2016, the clinically significant threshold has been updated to 100,000 CFU/mL for midstream urine specimens and 10,000 CFU/mL for catheter specimens. This update is to harmonize with National Health and Safety Network definitions for urinary tract infections (http://www.cdc.gov/nhsn/pdfs/pscmanual/7psccurrent.pdf), facilitates harmonization of microbiology protocols across the BJC system, and is supported by recent literature. If you have any questions about this update, please contact Carey-Ann Burnham, PhD, Medical Director of Clinical Microbiology, at cburnham@path.wustl.edu.

Recent Events In BJH Clinical Laboratory Services

On July 1, Assistant Professor Chang Liu MD PhD became the ASHI accredited Medical Director of the BJH HLA laboratory, succeeding Dr. Mohanakumar. Dr. Liu completed his Clinical Pathology residency and fellowships in Transfusion Medicine and Histocompatibility at WUSM. We are delighted to welcome Dr. Liu to our medical director group.

Beginning in July, Alton Memorial Hospital clinical laboratory ceased performing microbiology testing and began sending specimens to BJH and SLCH for culture and identification of infectious organisms. The transition has gone extremely well with no gaps in service. The BJH Clinical laboratories experienced two scheduled computer down times on June 4th and 5th, for installation of the Soarian registration system, and on July 10th for computer hardware updates to support the Cerner laboratory information system. During the down times specimen registration and test ordering were performed manually and test results were faxed to ICUs and printed copies were hand delivered to the ED and In-patient locations. Both computer down time events went well due to extensive advanced planning, coordination, and communication by BJH administration leadership, nursing, IT, laboratory staff, and clinical services.

At the beginning of July, the BJH microbiology laboratory began using the Kiestra system for automated processing, culturing, incubating, and reviewing urine cultures. We are looking forward to using this advanced automation platform for blood cultures in the near future.

In the 4th floor Institute of Health core laboratory we continue to make progress in optimizing the performance of the Roche automated chemistry and hematology system. In addition, we are making progress in several pre-analytical areas which affect the time from specimen collection to receipt of results including: redesigning specimen labels to prevent rejection by the automation barcode readers; collaboration with facilities department to optimize performance and monitoring of the pneumatic tube delivery system; and a thorough review of courier transportation of specimens and in-laboratory receiving and processing work flows.
Congratulations!

Ann Gronowski, PhD, Co-Medical Director of Clinical Chemistry and Medical Director of Immunology, was honored with two awards at the American Association of Clinical Chemistry (AACC) Annual Meeting in Philadelphia. The first is the Outstanding Contributions in Education Award. This award recognizes an individual who has devoted a major portion of his/her professional life to enhancing the practice and profession of clinical chemistry through education. Gronowski also received the AACC Award for Outstanding Contributions to Pediatric and Maternal-Fetal Clinical Chemistry. This award recognizes Gronowski’s contributions to this field, including her research on hCG and assays for pregnancy testing, and co-developing the Women and Infant’s Health Specimen Consortium (WIHSC).

The American Association for Clinical Chemistry (AACC) recently announced their Outstanding Speaker Awards for 2015. The Outstanding Speaker Awards honors those who have earned a speaker evaluation rating of 4.5/5 or higher during a continuing education activity accredited by AACC. Members of LGM receiving an AACC Outstanding Speaker Award include Ann Gronowski, PhD, Melanie Yarbrough, PhD, and Carey-Ann Burnham, PhD. https://www.aacc.org/~/media/files/sycl/awards/osa-2015.pdf?la=en

New Pseudomonas Susceptibility Testing Battery

by: Carey-Ann Burnham

The Barnes-Jewish Hospital Clinical Microbiology Laboratory implemented a new susceptibility testing panel for Pseudomonas aeruginosa on June 20, 2016. The antimicrobial agents on this panel include: Amikacin, Aztreonam, Ceftazidime, Ciprofloxacin, Colistin, Cefepime, Gentamicin, Imipenem, Meropenem, Piperacillin-Tazobactam, Tobramycin, and Ceftolozane-Tazobactam. To facilitate antimicrobial stewardship efforts, Amikacin is not routinely reported unless Gentamicin is resistant. Ceftolozane-Tazobactam is only routinely reported if cefepime or meropenem are resistant. If you have questions about this update, please contact Carey-Ann Burnham, Medical Director of Clinical Microbiology at cburnham@path.wustl.edu.

Did You Know?

There are currently 30,000 to 35,000 feet (around 6 miles) of pneumatic tubes currently in use at BJH?